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CLAIMS:

What is claimed is:

1 1. A system for transmitting data over a wireless
2 channel said system comprising:

3 a Trellis coder that specifically encodes said data
4 to substantially eliminate fading on a transmission
5 channel and increase capacity on an allocated bandwidth;
6 and

7 a wireless transmitter that transmits said encoded
8 data over said wireless channel.

1 2. The system of Claim 1, further comprising a
2 quadrature amplitude modulator that modulates said encoded
3 data to increase a number of simultaneous transmissions
4 within said allocated bandwidth.

1 3. The system of Claim 1, further comprising a digital
2 converter that converts said data into radio waves to
3 enable wireless transmission.

1 4. The system of Claim 3, wherein said Trellis coder
2 includes a Trellis decoder and decodes encoded data
3 received from a next system across said wireless channel.

1 5. The system of Claim 3, wherein said Trellis coder is
2 a Trellis encoder, said system further comprising a
3 Trellis decoder that decodes encoded data received from a
4 next system across said wireless channel.

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1 6. The system of Claim 3, wherein said Trellis coder is
2 located on an integrated circuit within a wireless
3 component.

1 7. The system of Claim 6, wherein said wireless
2 component is a voice communication device and said
3 Trellis coder further encodes and decodes voice
4 communication.

5 8. The system of Claim 1, wherein said Trellis coder
6 provides a maximum Euclidean distance between words of
7 said data during encoding to substantially reduce signal
8 power required for said wireless transmission.

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1 9. A GPRS/EDGE network for wireless transmission
2 comprising:

3
4 a data transmission station and a data receiving
5 station;

6 wherein said data transmission station including a
7 wireless transmitter and said data receiving station
8 including a wireless receiver;

9 wherein said data transmission station comprises a
10 Trellis encoder that specifically encodes data being
11 transmitted to substantially eliminate fading on a
12 transmission channel between said data transmission and
13 data receiving stations, reduces signal power required
14 for transmission of said data, and increase capacity on
15 an allocated bandwidth.

1 10. The GPRS/EDGE network of Claim 9, wherein said data
2 receiving station comprises a Trellis decoder that
3 decodes said encoded data.

1 11. The GPRS/EDGE network of Claim 10, wherein said data
2 transmission station comprises a quadrature amplitude
3 modulator that modulates said encoded data to increase a
4 number of simultaneous transmissions within said
5 allocated bandwidth.

1 12. The GPRS/EDGE network of Claim 9, wherein said data
2 transmission station is a mobile station.

1 13. The GPRS/EDGE network of Claim 12, wherein said
2 Trellis encoder is located on an integrated circuit
3 within said mobile station.

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1 14. The GPRS/EDGE network of Claim 13, wherein said data
2 is voice data.

1 15. A method for implementing Trellis coding within a
2 wireless network, said method comprising:

3 receiving data for transmission over a wireless link
4 of said wireless network;

5 evaluating a maximum Euclidian distance between code
6 words of said data to reduce signal power requirements;

7 minimizing fading channel considerations among said
8 code words;

9 encoding said data utilizing results of said
10 evaluating and minimizing steps; and

11 transmitting said encoded data over said wireless
12 link.

1 16. The method of Claim 15, further comprising the step
2 of modulating said encoded data utilizing quadrature
3 amplitude modulation that increases a number of
4 simultaneous transmissions within an available bandwidth.

1 17. The method of Claim 15, further comprising the
2 step of decoding said Trellis encoded data received via
3 said wireless air link.

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4 18. A computer program product comprising:

5 a computer readable medium; and

6 program instructions on said computer readable
7 medium for:

8 receiving data for transmission over a wireless
9 link of said wireless network;

10 evaluating a maximum Euclidian distance between
11 code words of said data to reduce signal power
12 requirements;

13 minimizing fading channel considerations among
14 said code words;

15 encoding said data utilizing results of said
16 evaluating and minimizing steps; and

17 transmitting said encoded data over said wireless
18 link.

1 19. The computer program product of Claim 18, further
2 comprising program instructions for modulating said
3 encoded data utilizing quadrature amplitude modulation
4 that increases a number of simultaneous transmissions
5 within an available bandwidth.

